FEDERAL-STATE COOPERATIVE

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

Montana and Yellowstone River Tributaries in Wyoming

MAR 1 6 1950
U.S. DEPARTMENT OF AGRICULTURE

By
Division of Irrigation, Soil Conservation Service
United States Department of Agriculture
and
Montana Agricultural Experiment Station

In cooperation with the U. S. Forest Service, U. S. Geological Survey, National Park Service, U. S. Bureau of Reclamation, State Engineers of Montana and Wyoming and other Federal, State and local organizations.

As of
MAR. 1, 1950

FEDERAL-STATE COOPERATIVE
SNOW SURVEY AND IRRIGATION WATER FORECASTS

FOR

MONTANA and NORTHERN WYOMING

Upper Missouri and Upper Columbia River
Basins

Report Prepared
by

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Division of Irrigation
Soil Conservation Service

and

Montana Agricultural Experimental Station
Bozemen, Montana

MARCH 1, 1950

PRELIMINARY WATER SUPPLY OUTLOOK

Snow survey courses measured on or about the first of March over the Upper Missouri, Yellowstone and Upper Columbia River Basins indicate only a GOOD water supply for this coming season; not as good as last year nor the year before. In general, the snow water equivalent over the Upper Columbia and central part of the Upper Missouri is ABOVE AVERAGE, while the Jefferson, Madison and Gallatin are somewhat BELOW AVERAGE. The Yellowstone in Montana is about average, while the Yellowstone tributaries in Wyoming are above average. Average precipitation accumulated totals to date for west of the divide show a slight plus of 1.81 inches above normal. The central division of the states shows a plus of only 0.44 inches, while the eastern division shows a plus of 0.30 inches

Reservoir storage on the Missouri is generally slightly below last year, and about the same as the year before.

The southerly portion of the Jefferson River Basin is in fair shape for this date with the snow water equivalent 110% of average for the last three years. Measurements in the Horse Prairie Creek Drainage Basin are only 81% of the past three year average, while the Big Hole Riber Basin measurements are 97% of the the past three year average. The Wise River is 94% of the past three years.

The Ruby River Basin is also low, being 93% of the past three years. The Madison River is in a somewhat better condition, being 116% of a longer average (from 11 to 17 years in length). The Gallatin River Basin is perhaps the lowest where the water equivalent measurements indicate 71% of a longtime average of from 9 to 17 years. The Main Stem of the Missouris shows 83% of an average range from 10 to 17 years. Other basins on the Upper Missouri; Teton, Sun and Marias are above average, ranging from 124% to 140%.

The Upper Yellowstone River in Montana is in fair condition for this time of year showing a general 106% of a 14 year average. The Yellowstone River tributaries in Wyoming are in excellent condition being higher than last year and showing from 119% to 141% of approximately a 10 year average.

On the Upper Columbia River in Montana, comparative averages of from 5 to 17 years indicate a fair water supply as follows: Flathead, 124%; Upper Clark Fork, 109%; Bitterroot, 120%; and the Kootenai, 129%.

None of the figures in this bulletin include a delayed general storm which occurred from March 5 through 7. This storm would have added materially to the March 1 measurements.

U S DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE
H. H. Bennett, Chief

DIVISION OF RESEARCH
M. L. Nichols, Chief
Washington, D. C

MONTANA AND NORTHERN WYOMING SNOW SURVEY COURSES

LEGEND
- □ TOWNS AND CITIES
- ● 1304 SNOW SURVEY COURSE
- ○ (14) IDAHO & WYOMING NUMBERS
- ▲ STREAM GAGING STATIONS

JANUARY 1950

DIVISION OF IRRIGATION BOZEMAN MONTANA

SCALE IN MILES 50 25 0 50 100

REPRODUCED BY THE SOIL CONSERVATION SERVICE, CARTOGRAPHIC DIVISION, LINCOLN NEBR. SR.11484

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By;[b]
Missouri River Drainage								
MISSOURI RIVER (BEAVERHEAD)								
Lakeview Ridge	11E3	7400	27	1S	2W	1948	3,4,5	9
Lakeview Canyon	11E4	6930	28	1S	2W	1948	3,4,5	9
Limekiln	11E2	6950	15	5S	9W	1948	3,4	1
White Pine Ridge	11E1	6850	16	1S	9W	1948	3,4	1
(MADISON PRAIRIE)								
Lindley Lick	13D10	7000	12	6S	10W	1948	3,4	1
Soda Stone	13D9	6100	11	6S	10W	1948	3,4	1
Lemhi Pass	13E1	7480	9	10S	15W	1948	3,4	1
Merrell Creek	13D12	6650	14	9S	15W	1948	3,4	1
Trail Creek	13E2	7090	15	10S	15W	1948	3,4	1
Railway Junction	13D11	6800	27	6S	15W	1948	3,4	1
(BIG HOLE)								
Big Hole Pass	13D3	7440	28	3S	18W	1948	3,4	1
Big Hole Pass(Below)	13D4	6900	24	3S	18W	1948	3,4	1
East Boundary	13D5	6700	22	3S	17W	1948	3,4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	2,3,4,5	1,2
Jackoke Creek	13D8	7340	25	7S	10W	1948	3,4	1
Miner Forks	13D6	7300	24	6S	17W	1948	3,4	1
Miner Lake	13D7	6720	10	6S	16W	1945	3,4,5	1
(NISE RIVER)								
Anderson Mdw.	13D14	7000	18	3S	12W	1948	3,4	1
Elk Horn	13D15	8450	15	4S	12W	1934	3,4,5	2
Nise River	13D13	6300	15	2S	12W	1948	3,4	1
(REEY RIVER)								
Cottonwood	11E2	5900	24	10S	3W	1948	3,4	1
Cottonwood (Upper)	11E1	6400	30	10S	2W	1948	3,4	1
Flashlight	12D3	6950	22	8S	7W	1945	3,4,5	1
Tobacco Root	12D2	6900	13	4S	3W	1948	3,4	1
Vigilante	11D1	6125	28	9S	3W	1948	3,4	1
MADISON RIVER								
Argen	11E5	6550	22	11S	3E	1934	1,2,3,4,5	2
West Yellowstone	11E7	6700	34	13S	5E	1934	1,2,3,4,5	2
Norris Basin	10E2	7500	44°-44'		110°-42'	1935	3,4	5,6
GALLATIN RIVER								
Devil's Slide	10D4	8100	14	5S	6E	1935	3,4,5	2,6
Hood Meadow	10D3	6600	22	4S	6E	1934	3,4,5	2,6
Mystic Lake	10D2	6600	30	3S	7E	1935	2,3,4	6,7
New World	10D1	6700	24	3S	6E	1939	2,3,4,5	6,7
21-Mile	11E6	7150	1	11S	5E	1934	1,2,3,4,5	2
MISSOURI RIVER MAIN STEM								
Chessman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5	2
Crystal Lake	9C1	6100	24	12N	17E	1941	3,4	1
Grasshopper	10C2	7000	19	9N	8E	1938	3,4	1
Kings Hill	10C1	7950	35	13N	7E	1937	3,4,5	2
Picnic Grounds	12C6	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	12D1	7200	11	1N	7W	1938	2,3,4,5	1
Stemple Pass	12C1	6900	16	13N	7W	1934	3,4,5	2
Tenmile Creek,Lower	12C2	6250	13	8N	6W	1935	1,2,3,4,5	2
Tenmile Creek,Middle	12C3	6800	13	8N	6W	1934	1,2,3,4,5	2
Tenmile Creek,Upper	12C4	8000	19	8N	5W	1935	1,2,3,4,5	2
(TETON RIVER)								
Bright Creek	12A1	6000	13	26N	10W	1948	3,4	1
Waldron Creek	12B2	5600	16	25N	9W	1948	3,4	1
West Fork	12B1	6000	6	25N	9W	1948	3,4	1
(SUN RIVER)								
Bench Mark	12B8	5500	9	20N	10W	1948	3,4	1
Cabin Creek	12B6	5400	33	23N	10W	1949	3,4	1
5-Bull	12B9	5600	36	20N	10W	1948	3,4	1
Gates Park	12B5	5300	31	21N	10W	1949	3,4	1
Goat Mountain	12B7	7000	20	22N	10W	1934	3,4	2
Ly Lake	13B9	7300	21	23N	12W	1950	3,4	1
Wrong Creek Ridge	12B3	6800	17	25N	10W	1949	3,4	1
Wrong Creek	12B4	5700	32	25N	10W	1949	3,4	1
(MARIAS RIVER)								
Marias Pass	13A5	5250	34	30N	14W	1936	1,2,3,4,5	2
Snow Lab. #16	13A9	5200	15	29N	14W	1947	1,2,3,4,5	2
(MILK RIVER)								
Rocky Boy	9A1	5200	15	28N	10E	1941	3,4	7
(MUSSELSHELL RIVER)								
Grasshopper	10C3	7000	19	9N	8E	1938	3,4	1
UPPER YELLOWSTONE								
Camp Senia	9D1	7890	2	8S	18E	1937	4	1
Canyon	10E3	7750	44°-44'		110°-30'	1938	1,2,3,4,5	Pd.Obs.
Cooke City	10D7	7400	25	9S	14E	1937	1,2,3,4,5	5
Crevice Mt.	10D5	8400	29	9S	9E	1935	3,4	1
Independence	10D6	8000	22	7S	12E	1941	3,4	Pd.Obs.
Lake Camp	10E4	7850	44°-34'		110°-24'	1937	1,2,3,4,5	Pd.Obs.
Lodgepole (Wyo.)	9E1	8200	32	56N	106W	1940	4,5	1
Lupine Creek	10E1	7300	44°-54'		110°-37'	1938	1,2,3,4,5	5
(SHIELDS RIVER)								
Porcupine	10C3	6500	10	4N	10E	1938	3,4	1
LOWER YELLOWSTONE								
(WIND RIVER) WYO.								
Brooks Lake #3	10F2	9200	23	44N	110W	1939	2,3,4,5	Pd.Obs.
Burroughs Creek	9F5	8800	15	43N	107W	1948	2,3,4,5	Pd.Obs.
Dinwoodie	9F10	10000	9	38N	105W	1948	2,3,4,5	Pd.Obs.
Dry Creek	9F9	9500	34	4N	105W	1948	2,3,4,5	Pd.Obs.
DuNoir	9F2	8750	27	42N	108W	1940	2,3,4,5	Pd.Obs.
Geyser Creek	9F3	8500	12	41N	108W	1948	2,3,4,5	Pd.Obs.
Hobbs Park	9G2	10000	22	2S	3W	1948	2,3,4,5	Pd.Obs.
Little Warm	9F4	9500	24	41N	108W	1948	2,3,4,5	Pd.Obs.
Mosquito Park R.S.	9G3	9500	23	2S	3W	1940	2,3,4,5	Pd.Obs.
Sheridan R. S.	9F1	7500	3	42N	109W	1939	2,3,4,5	1
St.Lawrence R.S.	9F11	9000	26	1N	4W	1940	2,3,4,5	Pd.Obs.
T-Cross Ranch	9F5	8000	1	43N	107W	1940	2,3,4,5	Pd.Obs.
Trout Creek	9G1	8400	5	2S	2W	1948	2,3,4,5	Pd.Obs.
Togwotee Pass	10F1	9600	29	44N	110W	1936	2,3,4,5	10
(SOUTH FORK RIVER) WYO.								
Blue Ridge	8G2	9500	23	31N	101W	1939	2,3,4,5	1
Grannier Meadows	8G4	9000	19	30N	100W	1936	2,3,4,5	1
Larson Creek	9G4	9000	12	30N	103W	1948	3,4,5	1
Sawmill Glade	8G1	8500	3	31N	101W	1939	2,3,4,5	1
South Pass	8G3	9000	13	30N	101W	1939	2,3,4,5	1

Drainage Basin and Course Name	Montana Number	Elev.	Location Sec. Lat.	Twp.	Range Long.	Record Began	Measuring Dates[a]	Measured By;[b]
Missouri River Drainage (Cont.)								
BIG HORN RIVER WYO.								
Beavers Hill	9F6	6900	6	43N	102W	1948	2,3,4,5	Pd.Obs.
Owl Creek	8F1	8700	30	43N	101W	1948	2,3,4,5	Pd.Obs.
Tensleep R.S.	7E3	8300	30	49N	86W	1935	4,5	1
Timber Creek	9E2	8800	25	47N	103W	1948	4,5	1
Ranger Creek	7E1	8800	32	53N	88W	1935	4,5	1
Wood River	9F7	8000	28	46N	103W	1939	2,3,4,5	1
(SHOSHONE RIVER) WYO.								
East Entrance	10E6	7000	17	52N	109W	1948	1,2,3,4,5	5
Sylvan Pass	10E5	7100	12	52N	110W	1936	1,2,3,4,5	5
TONGUE RIVER WYO.								
Big Goose	7E2	7700	4	53N	86W	1935	4,5	1
POWDER RIVER WYO.								
Red Fork	7E1	7000	18	43N	85W	1936	4,5	Pd.Obs.
Sour Dough	6E1	8500	17	49N	81W	1936	4,5	1
Columbia River Basin								
KOOTENAI RIVER								
Baree Mountain	15B1	6000	1	25N	31W	1937	4,5	1
Blue Bird Basin	14A1	6800	24	37N	26W	1937	4,5	1
Brush Creek	14A4	5000	13	30N	18W	1941	3,4	1
Red Mountain	15A1	6000	4	36N	29W	1937	3,4,5	1
FLATHEAD RIVER								
Big Creek	13B3	6750	6&7	22N	18W	1941	4,5	4
Brush Creek	14A4	5000	13	30N	26W	1937	3,4	1
Cattle Queen	13A1	4700	7	35N	17W	1939	3,4	5
Desert Mountain	13A2	5600	24	31N	19W	1937	1,2,3,4,5	1
Elk Mountain	13B4	6750	1	20N	19W	1941	3,4	4
Goat Mountain	12B7	7000	20	22N	10W	1934	3,4	2
Hell Roaring Divide	14A3	5770	35	32N	22W	1942	4,5	1
Kishenehn	14A2	4300	7	37N	21W	1946	4,5	5
Limestone Pass	13B8	7000	34	17N	15W	1948	3,4	1
Logan Creek	14A5	4300	34	30N	24W	1937	3,4	1
Marias Pass	13A5	5250	34	30N	14W	1934	1,2,3,4,5	2
North Fork Jocko	13B7	6330	3	17N	17W	1941	3,4	4
Rainy Lake	13B6	4300	11	18N	16W	1947	3,4,5	1
Snow Lab. # 16	13A9	5200	15	29N	14W	1946	1,2,3,4,5	2
Spotted Bear Mt.	13B2	7000	23	25N	15W	1948	3,4	1
Strawberry Lake	13B10	6500	11	28N	19W	1948	3,4	1
Trinkus Lake	13B1	6500	9	25N	17W	1948	3,4	1
Trout Lake	13B11	3600	21	28N	17W	1948	3,4	1
Upper Holland Lake	13B5	7000	28	20N	16W	1948	3,4	1
UPPER CLARK FORK								
Chessman Reservoir	12C5	6200	2	8N	5W	1936	1,2,3,4,5	2
East Fork Ranger Stn	13D1	5400	16	2N	17W	1937	4	1
El Dorado Mine	13C9	7800	23	8N	12W	1946	4	11
Gold Creek Lake	13C8	7200	14	8N	12W	1946	4	11
Intergaard	13C4	6450	6	5N	13W	1939	2,3,4	3
North Fork Jocko	13B7	6330	3	17N	17W	1941	3,4	4
Picnic Grounds	12C6	6500	22	5N	6W	1940	2,3,4	3
Pipestone Pass	12D1	7200	11	1N	7W	1938	2,3,4,5	1
Rainy Lake	13B6	4300	11	18N	16W	1947	3,4,5	1
Skalkaho Summit	13C3	7258	30	6N	17W	1937	4	1
Slide Rock Mountain	13C2	7100	26	10N	16W	1937	4	1
Southern Cross	13C5	6500	9	5N	13W	1939	2,3,4	3
Stemple Pass	13C1	6900	16	13N	7W	1934	3,4,5	2
Storm Lake No. 2	12C7	7780	19	4N	13W	1939	4	1
Stuart Mill	13C6	6500	19	5N	13W	1939	2,3,4	3
Stuart Mountain #1	13C1	7400	6	11N	18W	1936	4	1
Tenmile Creek,Lower	12C2	6250	13	8N	6W	1935	1,2,3,4,5	2
Tenmile Creek,Middle	12C3	6800	13	8N	6W	1935	1,2,3,4,5	2
Tenmile Creek,Upper	12C4	8000	19	8N	5W	1935	1,2,3,4,5	2
PEND OREILLE RIVER								
Baree Mountain	13B1	6000	1	25N	31W	1937	4,5	1
Freezeout Summit	15C3	7000	21	15N	27W	1937	4	1
Hoodoo Creek	13C1	6200	9&16	14N	27W	1937	4	1
BITTERROOT RIVER								
East Fork R. S.	13D1	5400	16	2N	17W	1937	4	1
Gibbons Pass	13D2	7100	4	2S	19W	1934	2,3,4,5	1
Mud Creek Pasture	14C1	4500	24	11N	24W	1937	3	1
Nezperce Camp	14D2	5580	19&20	1S	23W	1937	4	1
Nezperce Pass	14D1	6575	32	28N	16E	1937	4	1
Skalkaho Summit	13C3	7259	30	6N	17W	1937	4	1
Stuart Mountain #1	13C1	7400	6	11N	18W	1936	4	1
Saskatchewan River Basin								
ST. MARY RIVER								
Iceberg Lake	13A3	6000	48°-50'		113°-42'	1922	5	2,8
Piegan Pass # 4	13A4	5000	48°-40'		113°-40'	1922	5	2,8
Piegan Pass # 6	13A6	6500	48°-45'		113°-42'	1922	5	2,8
Mount Allen # 7	13A7	7000	48°-44'		113°-40'	1922	5	2,8
Ptarmigan # 8	13A8	5800	48°-50'		113°-42'	1922	5	2,8

a. Numerals 1,2,3,4, and 5 refer to January 1, February 1, March 1, April 1, and May 1.

b. Numerals refer to Agency that secures the snow survey as follows:

1. U. S. Forest Service
2. U. S. Geological Survey and U. S. Engineer Corps
3. Montana Power Company
4. U. S. Indian Service
5. National Park Service
6. Montana Experiment Station
7. City of Bozeman
8. Dominion Water and Power Bureau
9. U. S. Fish and Wildlife Service
10. U. S. Bureau of Reclamation
11. Deerlodge Citizens Committee

Pd. Obs. Paid Observer by Soil Conservation Service

SUPPLEMENTAL INDEX LIST OF SNOW SURVEY COURSES IN ADJACENT BASINS, USED IN THIS REPORT AND SHOWN ON THE INDEX MAP

DRAINAGE AND SNOW COURSE	Adj. State No.	Montana Number	Elev. Feet	Section Lat.	Twp	Range Long.	Record Began	Measurement Dates	Measured By
JEFFERSON	Idaho								
Algore	10	11E12	6200	6	12N	39E	1937	1,2,3,4,5	pd. obs
Blue Ridge Mine	5	11E11	6700	27	13N	38E	1938	4	pd. obs
Camp Creek	6	12E3	6800	21	13N	36E	1936	1,2,3,4	1
Moose Creek	8	13D16	6200	22-27	27N	21E	1937	3,4,5	1
Pig Springs	3	11E9	6500	34	19N	44E	1936	1,2,3,4,5	10
Island Park	9	11E10	3600	28	13N	43E	1936	1,2,3,4,5	10
Valley View	17	11E8	6500	7	15N	44E	1936	1,2,3,4	10
UPPER YELLOWSTONE	Wyo.								
Lewis Lake Div.	9	10E9	7900	44-13		110-40	1919	1,2,3,4	10
Water Creek	2	10E8	7700	44-17		110-37	1919	1,2,3,4	10
Fan Thumb Summit		10E7	7900	44-22		110-35	1949	3,4	10
LOWER YELLOWSTONE	Wyo.								
(Wind River)									
Togwotee Pass	12	10F1	9600	29	44N	110W	1936	2,3,4,5	10
Randall	25	9F12	7900	23	38N	110W	1936	3,4,5	1
Tomis Park	26	10F4	8500	14	37N	111W	1942	3,4,5	1
Yellow Jacket	14	10F5	6775	33	42N	112W	1936	3,4,5	1
Black Rock	2	10F3	8600	4	44N	111W	1936	2, 4	10
Itch Joe	23	9G6	8700	32	31N	104W	1936	4,5	1
Milligan Park	24	9G5	8900	17	35N	108W	1936	3,4,5	1
KOOTENAI	Idaho								
Smith Creek	13	16A1	4800	29	64N	3W	1937	4,5	1
	Canada								
Fernie	10		3500	49-31		115-01	1939		
Bay Creek	34		5100	39-37		116-41	1948		
Marble Canyon	32		5000	51-12		116-09	1947		
Nelson Creek	19		3050	44-25		117-14	1938		
Sinclair Pass	8A		4500	50-40		115-58	1947		
Sullivan Mine	20A		5100	49-43		116-01	1945		
Upper Elk River	41		4400	50-01		114-56	1947		
Kimberley	20		3800	49-41		115-59	1945		
UPPER CLARK FORK	Idaho								
Fish Meadows	1	15B10	5000	6	43N	5E	1937	1,2,3,4,5	1
Lookout	10	15B2	5250	4	47N	6E	1921	1,2,3,4,5	1
Above Roland	2	15B7	4350	35	47N	6E	1926	3	12*
Below Roland	3	15B6	3770	34	47N	6E	1926	3	12
Sunset	16	15B9	5600	28	49N	5E	1921	3	12
PEND OREILLE	Idaho								
Mosquito Ridge	9	16A4	5110	5	54N	2E	1937	4,5	1
BITTERROOT	Idaho								
Moose Creek	8	13D16	6200	22-27	27N	21N	1937	3,4,5	1
Mt Carson	3	14D3	4700	4	27N	16E	1937	4	1
Savage Pass	7	14C4	6000	18	36N	15E	1937	4	1
Powell Pasture	6	15C3	3700	27	27N	14E	1937	4	1
Lackers Mdw.	5	14C2	5700	15	38N	15E	1937	2,3,4,5	1

Washington Water Power Company

PRECIPITATION DATA FOR MARCH 1, 1950

STATIONS	1949 Oct.	1949 Nov.	1949 Dec.	1950 Jan.	February Precip.	February Dep.	Accum. Sum To Date	Departure From Normal
	Precipitation							
WEST OF DIVIDE								
Butte	0.62	0.53	0.34	0.66	0.29	-0.13	2.44	-0.05
Deerlodge	0.21	0.27	0.31	0.67	Incomplete		(1.46)*	-----
Hamilton	1.20	2.03	0.71	2.23	0.84	0.09	7.01	3.04
Kalispell	0.98	1.42	0.97	1.94	0.82	-0.29	6.13	-0.44
Missoula	0.74	0.72	0.65	1.75	0.50	-0.30	4.26	0.02
Trout Creek	2.89	5.28	----	8.71	5.20	2.38	(22.08)*	-----
Thompson Falls	2.05	2.95	----	4.71	2.25	0.86	(11.60)*	-----
(Average)	1.24	1.89	0.60	2.95	1.65		8.33	1.81
CENTRAL DIVISION								
Babb	1.61	0.57	1.64	----	0.14	-0.68	3.96	-0.91
Dillon	1.19	0.13	0.18	0.17	0.05	-0.67	1.72	-2.31
Fort Benton	1.86	0.23	1.28	----	----	----	(3.37)*	-----
Great Falls	.90	0.05	0.53	0.91	0.01	-0.54	2.40	-0.97
Havre	1.41	0.03	0.86	0.92	0.24	-0.26	3.46	0.34
Helena WBO	0.28	0.15	0.37	1.05	0.14	-0.23	1.99	-0.50
Livingston	1.40	0.51	0.53	1.20	0.23	-0.31	3.87	0.22
Lewistown Arpt.	1.82	0.18	1.78	----	----	----	(3.78)*	-----
Mystic Lake	2.32	0.04	1.41	----	0.78	-0.30	(4.55)*	-----
Summit (Marias)	3.06	5.13	4.04	9.35	3.55	0.98	25.13	10.87
Yellowstone Park	1.89	0.81	1.03	----	6.50	5.72	(10.23)*	-----
(Average)	1.61	0.71	1.24	2.27	1.29		7.12	0.44
EASTERN DIVISION								
Billings #2	2.21	0.02	0.72	0.69	0.31	-0.11	3.95	0.35
Circle	1.15	0.06	0.39	----	----	----	(5.55)*	-----
Fraser	0.90	0.05	0.50	1.19	0.56	0.22	3.20	0.65
Malta	1.25	0	0.62	0.90	0.25	-0.12	3.02	0.76
Mildred	1.69	T	0.51	0.19	0.33	0.07	2.72	0.70
Medicine Lake	0.50	T	0.35	0.87	0.18	-0.14	1.90	-0.09
Miles City	2.43	0.02	0.20	0.22	----	----	(2.78)*	-----
Fort Peck	0.67	T	1.04	0.83	0.51	0.24	3.05	0.90
(Average)	1.35	0.02	0.54	0.70	0.36		2.97	0.30

*Incomplete

STORAGE IN RESERVOIRS OF MONTANA

MISSOURI RIVER BASIN

RESERVOIR	Location or on Diversion from	Usable Capacity	Contents This Month End - 1950	Contents February 1949
Lake Sewall	Missouri	37,800	32,130	24,330
Hauser Lake	Missouri	52,090	42,690	32,730
Ft. Peck Res.	Missouri	19,000,000	11,490,000	12,580,000
Ruby Res.	Ruby	38,500		
Harrison Lake	Willow Cr.	17,760		
Hebgen Res.	Madison River	345,000	206,800	255,900
Madison Res.	Madison River	41,000	38,660	37,970
Smith River Res.	Smith River	10,700		
Gibbons Res.	N. Fk. Sun River	105,000	40,590	70,350
Willow Creek	N. Fk. Sun-Willow Cr.	32,300	2,970	18,470
Pishkun Res.	N. Fk. Sun River	32,000	18,910	16,140
Lower Two Medicine L.	Two Medicine River	14,000	0	0
Four Horns Res.	Badger Creek	20,000	5,990	9,800
Birch Creek Res.	Birch Creek	30,000	19,290	28,380
Lake Francis Res.	Birch Creek	112,000	82,050	99,120
Ackley Lake	Judith River	5,820	4,360	
Durand Res.	N. Fk. Musselshell	7,010		
Dead Man Basin	Musselshell River	52,500		
Martinsdale Res.	So. Fk. Musselshell	23,100		
Fresno Res.	Milk River	127,200		
Nelson Res.	Milk River	66,800		
Mystic Lake	W. Rosebud Creek	20,800	8,630	9,360
Cooney Res.	Red Lodge Creek	27,500	12,350	
Tongue Res.	Tongue River	73,900	5,460	
Sherburne Lake Res.	Swiftcurrent Creek	66,100		11,580
Lake Helena	Missouri River	10,450	5,830	2,330
COLUMBIA RIVER BASIN				
Georgetown Lake	Flint Creek	31,000	18,520	28,210
E. Fk. Rock Cr. Res.	E. Fk. Rock Creek	16,040		
Nevada Creek Res.	Nevada Creek	12,600		9,140
W. Fk. Bitterroot Res.	E. Fk. Bitterroot	31,700	650	10,000
Como Lake	Rock Creek	34,800		
Flathead Lake(Sommers)	Flathead River	1,791,000	657,500	651,600
Little Bitterroot	Little Bitterroot	37,100*	27,140	36,120
Dry Fork Res.	Dry Fork Creek	6,700*	3,240	3,510
Mission Valley Reservoirs	Mission Valley (Flathead River)	105,000**	33,500	28,891

*Comprise two reservoirs on Dry Creek.
*Comprise two reservoirs on Little Bitterroot River.
**Comprise nine small reservoirs on Mission Valley Project Indian Reclamation Service.

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	SNOW MEASUREMENTS Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
JEFFERSON RIVER (Rock-Beaverhead)										
Lakeview Ridge	11E3	7400	3/1	33.8	9.8	9.2	5.5	8.3	118	3
Lakeview Canyon	11E4	6930	3/1	45.0	14.7	12.5	5.4	10.9	135	3
Limekiln	11E2	6950	2/22	3.0	1.0	2.6	0.8	1.5	67	3
White Pine Ridge	11E1	8850	2/22	20.6	5.0	4.9	4.9	4.9	102	3
*Kilgore	11E12	6200	2/24	30.0	7.9	6.3	9.7	10.3	131	15
*Camp Creek	12E3	6800	2/25	36.0	11.9	10.5	4.1	7.9	148	15
(Horse Prairie)										
Bloody Dick	13D10	7600	2/7	34.4	8.5	13.9	7.0	9.8	87	3
Gold Stone	13D9	8100	2/7	43.0	10.4	15.6	9.7	12.5	83	3
Lemhi Pass	13E1	7400	2/21	23.6	5.4	7.9	9.3	7.5	72	3
Terrell Creek	13D12	6650	2/21	13.0	3.0	4.8	2.4	3.4	88	3
Trail Creek	13E2	7090	2/21	23.2	4.3	7.0	7.7	6.3	68	3
Selway Junction	13D11	6500	2/21	22.1	5.4	8.8	4.1	6.1	89	3
(Big Hole)										
Big Hole Pass	13D3	7440	2/9	44.2	12.2	20.9	11.6	14.9	82	3
Big Hole Pass(Below)	13D4	6900	2/9	41.6	11.5	17.9	7.9	12.4	93	3
East Boundary	13D5	6700	2/9	30.6	7.6	9.8	5.2	7.5	101	3
Gibbons Pass	13D2	7100	2/28	73.1	25.2	26.2	19.8	18.2	139	18
Jahnke Creek	13D8	7340	2/7	33.4	7.7	13.6	6.3	9.2	84	3
Miner Forks	13D6	7300	2/8	33.6	8.2	14.0	6.3	9.5	86	3
Miner Lake	13D7	6720	2/8	24.0	5.8	9.4	6.6	7.3	80	6
*Moose Creek	13D16	6200	2/27	48.0	14.6	21.2	15.3	12.8	114	13
(Wise River)										
Anderson Meadow	13D14	7000	2/10	27.8	6.8	8.4	6.6	7.2	95	3
Elk Horn	13D15	8450	2/27	28.4	7.1	12.2	8.4	7.2	99	16
Wise River	13D13	6300	2/10	17.8	4.2	5.7	4.5	4.8	88	3

*Adjacent Basins

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN

DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
(Ruby River)										
Cottonwood	11E2	5900	2/27	30.3	8.6	8.2	5.9	7.6	108	3
Cottonwood (Upper)	11E1	8400	2/27	30.0	8.9	9.2	6.0	8.0	111	3
Flashlight	12D3	6950	2/24	13.9	3.2	5.0	3.8	3.6	89	6
Tobacco Root	12D2	6900	2/24	20.4	5.0	11.0	8.3	8.1	63	3
Vigilante	11D1	6125	2/27	NO SNOW		2.1	1.1	1.1	---	0
MADISON RIVER										
Hebgen	11E5	6550	2/27	36.2	9.6	14.0	10.1	10.1	95	17
West Yellowstone	11E7	6700	2/28	38.3	11.7	14.4	6.9	9.9	119	17
Norris Basin	10E2	7500	2/9	35.7	8.7	----	----	8.1	108	11
*Big Springs	11E9	6500	2/25	65.0	20.4	26.4	13.2	17.0	120	15
*Island Park	11E10	3600	2/27	52.0	17.3	21.8	10.2	13.4	129	15
*Valley View	11E8	6500	2/26	52.0	15.3	17.3	8.8	12.5	123	6
GALLATIN RIVER										
Devil's Slide	10D4	8100	2/26	52.7	12.9	18.1	23.3	15.0	86	16
Hood Meadow	10D3	6600	2/25	21.8	4.3	8.7	6.2	6.2	69	15
Mystic Lake	10D2	6600	3/5	15.2	3.8	9.8	11.9	6.3	60	16
New World	10D1	6700	3/5	21.2	5.3	11.2	14.7	8.7	61	9
21-Mile	11E6	7150	2/27	52.5	17.1	20.5	14.4	13.8	81	17
MISSOURI RIVER MAIN STEM										
Chessman Reservoir	12C5	6200	3/3	11.9	3.4	7.1	8.4	4.4	77	15
Crystal Lake	9C1	6100	2/27	23.7	5.3	15.1	14.4	10.3	52	10
Grasshopper	10C2	7000	2/28	15.1	3.8	7.3	5.0	4.2	91	13
Kings Hill	10C1	7950	3/1	41.2	12.0	15.1	11.9	10.5	114	15
Picnic Grounds	12C6	6500	3/1	12.0	2.5	6.3	8.0	5.6	45	3
Pipestone Pass	12D1	7200	2/28	22.2	1.8	6.8	5.7	4.0	45	13
Stemple Pass	12C1	6900	2/27	32.7	8.2	12.1	8.5	8.0	102	17
Tenmile, Lower	12C2	6250	3/1	20.6	5.4	8.1	9.0	5.6	97	16
Tenmile, Middle	12C3	6800	3/1	31.8	8.4	11.2	12.4	8.1	104	17
Temmile, Upper	12C4	8000	3/1	36.9	10.6	13.2	15.7	10.3	103	16

*Adjacent Basins

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN

DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
(Teton River)										
Fright Creek	12A1	6000	3/4	50.1	18.2	15.3	12.3	15.3	119	3
Waldron Creek	12B2	5600	3/3	27.6	9.6	6.8	4.5	7.0	137	3
West Fork	12B1	6000	3/3	44.2	16.8	16.6	9.9	14.4	116	3
(Sun River)										
Benchmark	12B8	5500	3/2	30.9	10.5	9.0	7.0	8.8	131	3
Cabin Creek	12B6	5400	2/28	26.3	7.2	6.2	----	----	---	2
5-Bull	12B9	5600	3/2	33.3	7.8	6.9	7.7	7.5	104	3
Gates Park	12B5	5300	3/1	36.1	10.8	9.8	----	----	---	2
Goat Mountain	12B7	7000	2/28	42.4	13.2	11.2	9.8	8.3	149	17
My Lake	13B9	7300	3/7	122.0	46.5	---	---	---	---	1
Wrong Creek Ridge	12B3	6800	3/2	70.0	26.2	20.8	----	----	---	2
Wrong Creek	12B4	5700	3/2	51.3	17.6	34.4	----	----	---	2
(Marias River)										
Marias Pass	12B5	5250	2/25	70.4	24.3	20.5	13.7	14.5	167	17
Snow Lab. #16	13A9	5200	2/28	69.4	23.9	20.4	14.8	21.0	114	4
(Milk River)										
Rocky Boy	9A1	5200	3/1	16.9	3.5	9.6	6.5	5.3	68	10
(Musselshell River)										
Grasshopper	10C3	7000	2/28	15.1	3.8	7.3	5.0	4.2	91	13
UPPER YELLOWSTONE										
Canyon	10E3	7750	2/28	51.0	14.1	13.4	10.6	13.0	108	5
Cooke City	10D7	7400	2/28	25.7	5.8	9.3	8.1	6.5	89	14
Crevice Mt.	10D5	8400	3/1	29.7	7.5	11.4	11.2	8.2	92	12
Independence	10D6	8000	2/27	59.6	14.2	20.3	----	13.8	103	7
Lake Camp	10E4	7850	2/28	36.6	10.1	12.5	----	8.1	124	14
Lupine	10E1	7300	2/27	30.8	9.2	13.3	7.8	7.5	121	13
*Lewis Lake Divide	10E9	7000	2/17	101.0	35.2	39.7	23.5	37.6	94	31
*Astor Creek	10E8	7700	2/17	93.0	31.8	30.7	15.8	26.5	112	31
*Tom Thumb Summit	10E7	7900	2/17	76.0	24.5	23.3	----	22.5	108	3

*Adjacent Basins

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN

DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
(Shields River)										
Porcupine	10C3	9200	3/4	13.3	3.4	8.0	5.2	4.2	81	13
LOWER YELLOWSTONE (Wind River)										
Brooks Lake #3	10F2	9200	3/2	76.6	26.6	22.5	19.1	18.1	147	14
Burroughs Creek	9F6	8800	3/1	52.4	16.0	14.4	----	----	---	2
Dinwoodie	9F10	10000	3/1	49.3	14.6	10.8	----	----	---	2
Dry Creek	9F9	9500	3/1	33.1	9.0	5.9	----	----	---	2
Du Noir	9F2	8750	3/2	36.6	11.2	9.3	5.6	7.8	144	10
Geyser Creek	9F3	8500	3/3	33.0	10.1	8.4	----	----	---	2
Hobbs Park	9G2	10000	2/28	65.3	23.7	19.5	----	21.6	110	2
Little Warm	9F4	9500	3/3	56.8	18.7	13.7	----	----	---	2
Mosquito Park	9G3	9500	2/28	37.9	11.3	10.3	6.0	8.2	138	7
Sheridan	9F1	7500	3/2	24.0	7.4	8.6	6.6	5.5	134	14
St. Lawrence	9F11	9000	2/26	29.1	8.2	9.0	4.9	6.7	122	7
T-Cross Ranch	9F5	8000				7.1	4.9			
Trout Creek	9G1	8400	2/28	18.5	4.5	9.1	----	6.8	66	2
*Kendall	9F12	7900	3/1	36.4	10.1					
*Loomis Park	10F5	8500	3/1	58.1	19.2					
*Yellow Jacket	10F4	6775	2/16	24.0	5.2	6.9	4.7	5.7	92	12
(Popo Agie River)										
Blue Ridge	8G2	9500	2/27	44.6	14.8	15.7	9.3	8.2	180	12
Grannier Meadows	8G4	9000	2/27	53.7	17.5	16.8	11.5	10.3	170	14
Larsen Creek	9G4	9000	2/25	55.1	17.3	13.1	----	15.2	114	2
Sawmill Glade	8G1	8500	2/27	14.4	4.6	8.0	6.0	4.8	96	11
South Pass	8G3	9000	2/27	52.9	17.3	15.8	9.2	10.6	163	11
*Mulligan Park	9G5	8900	2/28	42.0	11.7	10.6	6.4	9.4	125	9

*Adjacent Basins

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN

DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
BIG HORN RIVER (Wyoming)										
Beaver's Mill	9F8	8000	2/28	29.8	7.7	6.9	----	----	---	2
Owl Creek	8F1	8700	3/1	22.3	5.8	6.0	----	----	---	2
Timber Creek	9E2	8800	2/27	14.0	4.1	7.5	----	5.3	129	2
SHOSHONE RIVER (Wyoming)										
East Entrance	10E6	7000	2/27	31.2	9.6	14.4	----	12.0	80	2
Sylvan Pass	10E5	7100	2/26	46.8	14.5	15.7	12.6	12.2	120	6
KOOTENAI	COLUMBIA RIVER BASIN									
Brush Creek	14A4	5000	3/2	47.9	14.0	17.0	----	13.8	102	4
Fernie	Canada	3500	2/28	39.4	10.2	9.3	8.1	6.6	155	9
Gray Creek	Canada	5100	2/27	58.8	16.1	17.8	----	----	---	2
Kimberley	Canada	3800	2/28	32.0	9.2	7.2	7.3	5.3	173	9
Marble Canyon	Canada	5000	2/27	55.9	14.9	12.0	11.9	12.3	122	3
Nelson Creek	Canada	3050	2/27	33.7	13.3	20.2	13.3	11.4	117	9
Red Mountain Mont.	15A1	6000	3/1	62.0	20.2	18.7	15.4	15.4	131	3
Sinclair Pass	Canada	4500	2/28	26.4	5.9	3.7	5.9	5.2	113	3
Sullivan Mine	Canada	5100	2/28	49.4	15.6	12.7	12.2	11.4	137	4
Upper Elk River	Canada	4400	2/28	34.0	9.6	8.0	8.3	8.6	112	3
FLATHEAD RIVER										
Big Creek	13B3	6750	3/1	113.0	38.7	35.0	---	30.4	128	6
Brush Creek	14A4	5000	3/2	47.9	14.0	17.0	----	13.8	102	4
Cattle Queen	13A1	4700								
Desert Mountain	13A2	5600	2/27	57.0	16.8	----	10.3	11.6	152	7
Elk Mountain	13B4	6750								
Goat Mountain	13B7	7000	2/28	42.4	13.2	11.2	9.8	8.3	149	17
Limestone Pass	13B8	7600	3/1	126.3	48.8	40.5	39.4	42.9	114	3
Logan Creek	14A5	4300	3/3	32.7	9.1	10.4	----	8.8	103	5
Marias Pass	13A5	5250	2/25	70.4	24.3	20.5	13.7	14.5	167	17
North Fork Jocko	13B7	6330	3/7	126.0	45.0	37.4	39.5	35.4	129	10

*Adjacent Basins

MONTANA SNOW SURVEYS March 1, 1950

MISSOURI BASIN

DRAINAGE BASIN AND SNOW COURSE **	No.	Elev.	Date of Survey 1950	Snow Depth (In.) 1950	Water Content (Inches) March 1 1950	Past Records 1949	Past Records 1948	Average Data March 1 Avg.	Average Data March 1 %Avg.	Years of Record
FLATHEAD RIVER Continued										
Rainy Lake	13B6	4300	2/27	45.1	13.6	14.3	9.0	11.8	115	4
Snow Lab. #16	13A9	5200	2/28	69.4	23.9	20.4	14.8	21.0	114	4
Spotted Bear Mt.	13B2	7000	3/1	55.2	17.5	19.3	----	----	---	2
Strawberry Lake	13B10	6500	2/28	114.9	40.5	39.4	----	----	---	2
Trinkus Lake	13B1	6500	3/1	119.6	43.3	45.0	32.3	40.2	108	3
Trout Lake	13B11	3600	3/3	64.3	23.7	21.0	14.4	19.7	121	3
Upper Holland Lake	13B5	7000	3/1	103.3	36.8	31.0	27.8	31.9	115	3
UPPER CLARK FORK										
Chessman Res.	12C5	6200	3/3	11.9	3.4	7.1	8.4	4.4	77	15
El Dorado Mine	13C9	7800	2/28	62.0	16.4	----	----	----	---	1
Gold Creek Lake	13C8	7200	2/28	50.3	14.3	----	----	----	---	1
Intergaard	13C4	6450	3/1	25.0	5.9	10.6	8.2	5.7	104	15
North Fork Jocko	13B7	6330								
Picnic Grounds	13C6	6500	3/1	12.0	2.5	6.3	8.0	5.6	45	3
Pipestone Pass	12D1	7200	2/28	22.2	1.8	6.8	5.7	4.0	45	13
Rainy Lake	13B6	4200	2/28	45.1	13.6	14.3	9.0	11.8	115	4
Southern Cross	13C5	6500	3/1	11.0	2.6	6.4	5.7	4.2	62	15
Stemple Pass	13C1	6900	2/27	32.7	8.2	12.1	8.5	8.0	102	17
Stuart Mill	13C6	6500	3/1	20.5	5.5	8.8	6.5	7.1	78	12
Tenmile, Lower	12C2	6250	3/1	20.6	5.4	8.1	9.0	5.6	97	16
Tenmile, Middle	12C3	6800	3/1	31.8	8.4	11.2	12.4	8.1	104	17
Tenmile, Upper	12C4	8000	3/1	36.9	10.6	13.2	15.7	10.3	103	16
*49 Meadows	15B10	5000	3/1	99.0	37.2	51.5	----	27.1	137	13
*Lookout	15B2	5250	2/28	104.0	36.4	46.0	30.0	28.3	129	22
BITTERROOT										
Gibbons Pass	13D2	7100	2/28	73.1	25.2	26.2	19.8	18.2	139	18
Mud Creek Pasture	14C1	4500	3/1	30.0	11.2	15.3	7.5	8.4	133	8
Nezperce Camp	14D2	5580	3/1	40.9	11.8	----	12.0	10.6	111	12
Nezperce Pass	14D1	6575	3/1	45.5	14.6	20.4	20.9	14.0	104	14
*Moose Creek	13D16	6200	2/27	48.0	14.6	21.2	15.3	12.8	114	13

*Adjacent Basins

Federal - State - Private

COOPERATIVE SNOW SURVEYS

Furnishes the basic data necessary for forecasting water supply for irrigation, domestic and municipal water supply, hydro-electric power generation, navigation, mining and industry

"WATER IS THE WEST'S GREATEST RESOURCE"